

## Perry, Renee

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**From:** Renee Perry <Perry.Renee@epamail.epa.gov> on behalf of Prakash\_Bhave/RTP/USEPA/US <Prakash\_Bhave/RTP/USEPA/US@epamail.epa.gov>  
**Sent:** Tuesday, September 20, 2016 11:38 AM  
**To:** Perry, Renee

----- Forwarded by Renee Perry/RTP/USEPA/US on 09/20/2016 11:36 AM -----

From: Prakash Bhave/RTP/USEPA/US  
To: "Katherine von Stackelberg" <kvon@hsph.harvard.edu>,  
Date: 03/06/2012 10:20 AM  
Subject: Re: Aromatic contribution to PM

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Got it. I'll call you at this number. I may be a few minutes late returning from a 230-330 meeting.

"Katherine von Stackelberg" <kvon@hsph.harvard.edu> wrote on 03/06/2012 08:55:18 AM:

> From: "Katherine von Stackelberg" <kvon@hsph.harvard.edu>  
> To: Prakash Bhave/RTP/USEPA/US@EPA  
> Date: 03/06/2012 08:57 AM  
> Subject: Re: Aromatic contribution to PM  
>  
> Thank you! Different number after all: 508 596 4209 -- look  
> forward to speaking with you then, and thank you for your time!!  
>  
>  
> \_\_\_\_\_  
> Katherine von Stackelberg, ScD  
> Harvard Center for Risk Analysis  
> 617.998.1037  
> www.hcra.harvard.edu  
> and  
> www.srphsph.harvard.edu  
>  
>  
> >>> Prakash Bhave <Bhave.Prakash@epamail.epa.gov> 3/5/2012 4:35 PM >>>  
> Hi Trina,  
>  
> I did some fact-finding in prep for our call tomorrow at 3:30. Here are  
> a few quick things you'll want to read through before we talk.  
>  
> 1. Pages 593-594 of the Regulatory Impact Analysis for RFS2  
> (<http://www.epa.gov/otaq/renewablefuels/420r10006.pdf>) gives a much more  
> accurate sense of how much we can expect PM concentrations to change  
> with widespread adoption of a reformulated fuel.  
>  
> 2. Page 583 of the same document describes a small error in the PM2.5

> emissions that prevented EPA from doing a more quantitative benefits  
> analysis on the PM.

>

> 3. The attached paper provides background in a more condensed format.  
> This may be too much to read by tomorrow, so I'll just quote a key  
> statement on the lower-right of page 7715. "Air quality modeling  
> results are presented for ozone and air toxics. While PM2.5  
> concentrations will also be impacted, and these impacts have been  
> modeled (U. S. EPA, 2010a), air quality modeling results for this  
> pollutant are not discussed in this paper because of limitations in  
> local-scale results, resulting from an error in spatially allocating  
> emissions from one PM2.5 emission source."

>

> I'll give you a call tomorrow at 617.998.1037, unless you send a  
> different number before then.

>

> regards,  
> Prakash  
> (See attached file: CookR\_AtmEnv2011.pdf)

>

>

> From: "Katherine von Stackelberg" <kvon@hsph.harvard.edu>  
> To: Prakash Bhawe/RTP/USEPA/US@EPA  
> Date: 03/01/2012 11:37 AM  
> Subject: Re: Aromatic contribution to PM

>

>

>

> Hi Prakash! Hope all is well. I will try checking in with you later  
> but wanted to give you a heads up -- just met with Joel and I have a  
> slightly better understanding of what he wants to do -- let me run this  
> by you:

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> so he's looking for annual average CMAQ results by grid cell for  
> "baseline" and probably RFS in order to do a more detailed analysis of  
> the potential benefits of reducing aromatics in gasoline. His back of  
> the envelope, based on this 0.1 - 0.3, suggests around 7000 potential  
> deaths overall -- not much when compared to big rules but not nothing,  
> either. The other thing is -- 0.1 - 0.3 means it's 0 in some places and  
> much more than that other places and he wants to explore that, as well,  
> and run it through BenMap or something like that in order to do the  
> actual risk assessment as opposed to just the number.

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> We are hoping that asking for annual average CMAQ results by gridcell  
> just for SOA (or whatever the CMAQ proxy is) is less onerous than every  
> single daily result, and that the idea of doing the actual risk  
> assessment might make this more attractive to you! Again, the back of  
> the envelope suggests this is small but not trivial and at least gets  
> the idea out there (also relative to what else you might do with those  
> aromatics which would involve some refinery runs etc. something for  
> later!).

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> Perhaps you can contemplate that some and I will check in with you after  
> this meeting I'm about to hop into! Thank you!! best, Trina

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>

>

> Katherine von Stackelberg, ScD

> Harvard Center for Risk Analysis  
> 617.998.1037  
> www.hcra.harvard.edu  
> and  
> www.srphsph.harvard.edu  
>  
>  
> >>> Prakash Bhawe <Bhave.Prakash@epamail.epa.gov> 2/13/2012 3:25 PM >>>  
>  
> Hi Trina,  
>  
> Here's the info I promised you.  
>  
> 1) See <http://www.geosci-model-dev.net/3/205/2010/gmd-3-205-2010.html>  
> Lower-right panel of Fig 2 shows the typical summertime concentrations  
> you can expect from CMAQ.  
>  
> 2) As I mentioned, measurement-based studies also conclude that aromatic  
> SOA  $\approx$  0.1 – 0.3  $\mu\text{gC}/\text{m}^3$ . In each paper that follows, the aromatic  
> contribution is tabulated under the heading "toluene."  
>  
> Research Triangle Park, NC  
> (See attached file: OffenberghJH\_AAQR2011.pdf) (see Table 4)  
>  
> Bondville, East St. Louis, Northbrook (IL), Detroit (MI), Cincinnati  
> (OH)  
> (See attached file: LewandowskiM\_EST2008.pdf) (see Table 1)  
>  
> Centreville, Birmingham (AL), Pensacola (FL), Atlanta (GA)  
> (See attached file: KleindienstTE\_JAWMA2010.pdf) (see Table 3)  
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> Data from southern California sites are also in this range, though not  
> yet published. Do let me know if you or Joel would like additional info  
> on this topic.  
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> regards,  
> Prakash  
>  
> -----  
> Prakash Bhawe, Ph.D.  
> Acting Assistant Lab Director for Air, Climate and Energy  
> National Exposure Research Laboratory  
> U.S. Environmental Protection Agency  
> 109 T.W. Alexander Drive, Room D321i, Mail Drop D305-01  
> Research Triangle Park, NC 27711  
> phone: 919-541-2194 fax: 919-541-7588  
> email: [bhave.prakash@epa.gov](mailto:bhave.prakash@epa.gov)  
> web: <http://www.epa.gov/amad/Staff/bhave.html>  
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From: Prakash Bhawe/RTP/USEPA/US  
To: "Katherine von Stackelberg" <[kvon@hsph.harvard.edu](mailto:kvon@hsph.harvard.edu)>,  
Date: 03/05/2012 04:35 PM  
Subject: Re: Aromatic contribution to PM

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1. Pages 593-594 of the Regulatory Impact Analysis for RFS2 (<http://www.epa.gov/otaq/renewablefuels/420r10006.pdf>) gives a much more accurate sense of how much we can expect PM concentrations to change with widespread adoption of a reformulated fuel.
2. Page 583 of the same document describes a small error in the PM2.5 emissions that prevented EPA from doing a more quantitative benefits analysis on the PM.
3. The attached paper provides background in a more condensed format. This may be too much to read by tomorrow, so I'll just quote a key statement on the lower-right of page 7715. "Air quality modeling results are presented for ozone and air toxics. While PM2.5 concentrations will also be impacted, and these impacts have been modeled (U. S. EPA, 2010a), air quality modeling results for this pollutant are not discussed in this paper because of limitations in local-scale results, resulting from an error in spatially allocating emissions from one PM2.5 emission source."

I'll give you a call tomorrow at 617.998.1037, unless you send a different number before then.

regards,  
Prakash

[attachment "CookR\_AtmEnv2011.pdf" deleted by Prakash Bhav/RTP/USEPA/US]

"Katherine von Stackelberg" ---03/01/2012 11:37:12 AM---Hi Prakash! Hope all is well. I will try checking in with you later but wanted to give you a heads

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To: Prakash Bhav/RTP/USEPA/US@EPA  
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>>> Prakash Bhawe <Bhawe.Prakash@epamail.epa.gov> 2/13/2012 3:25 PM >>>

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Here's the info I promised you.

1) See <http://www.geosci-model-dev.net/3/205/2010/gmd-3-205-2010.html>  
Lower-right panel of Fig 2 shows the typical summertime concentrations  
you can expect from CMAQ.

2) As I mentioned, measurement-based studies also conclude that aromatic  
SOA  $\approx 0.1 - 0.3 \mu\text{gC}/\text{m}^3$ . In each paper that follows, the aromatic  
contribution is tabulated under the heading "toluene."

Research Triangle Park, NC

(See attached file: OffenberghJH\_AAQR2011.pdf) (see Table 4)

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Data from southern California sites are also in this range, though not  
yet published. Do let me know if you or Joel would like additional info  
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Prakash

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Prakash Bhawe, Ph.D.

Acting Assistant Lab Director for Air, Climate and Energy  
National Exposure Research Laboratory

U.S. Environmental Protection Agency  
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Tuesday, 3:30 (March 6).

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